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Y.E.S. QUARTERLY

(formerly TIEG)

TEX
1 mi
Los C
6-x-1983 Creek
FLORIDA: Alachua/
Levy Co. line
2.5 mi SW Archer
14-vii-1983
NEW MEX.: Torrance
Co., 7miE Willard
Laguna del Perro
9-vi-1983
LIF.: Imperial Co.
Lton Sea Beach
ton Sea Beach
vii-1983 (shore)
Co., Stafford Co.
Quivira NWR
lt Marsh
-1983
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ge, Rt 4
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NEW HAMP.: Coos Co.
Mt. Washington
Alpine Garden, 5200'
2-vi-1983
ARIZ.: Coconino Co.
5-7 mi N Kaibab
Lodge (8000' elev)
7-viii-1983
NORTH CAROLINA:
Richmond Co.
3 mi W Hoffman
29-iv-1983
CLO.: Clear Creek
Co., 2miE Loveland
Pass, Clear Creek
30-vii-1983
MICH.: Clinton Co.
Bath Twp, sec. 24
Vermillion Creek
19-iv-1983
MEX.: Bernalillo
Co., Rio Grande,
5 mi S Albuquerque
25-vi-1983
NH.: Hillsborough
3 mi W Merrimack
Souhegan River
25-v-1983
MICHIGAN: Oakland
Co., nr Rochester
T3N, R11E, sec. 14
26-iv-1983
CONN.: New Haven
Wallingford, Rt 1
Quinnipiac River
28-v-1983
NEBR.: Lancaster Co.
1 mi S Ceresco at
Rock Creek flats
10-ix-1983
GEORGIA: Gordon Co.
nr Calhoun, Rt 156
at Ootanauga River
7-vii-1983
NEVADA: Clark Co.
Mesquite, Rt 170
at Virgin River
17-vii-1983
ILL.: Effingham Co.
10 mi SW Effingham
I-70E rest area
5-vii-1983
FLORIDA: Gilchrist/
Suwanee Co. line
Santa Fe River
24-iv-1983
ALABAMA: Limestone
Co., 4mS TN/AL line
I-65S rest area
17-vii-1983
NEBR.: Howard Co.
2miSE Middle Loup Riv.
18-viii-1983
UTAH:
7miNW
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OKLA.
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I-44W
29-v-19
MICH.:
nr Sycar
T3N, R2W
7-iv-1983
CALIF.: San D
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Sweetwater Rvn
16-vii-1983
ALABAMA: Mac
Co., Huntsvi
Monte Sano S.
26-vii-1983
FLORIDA: Manat
Co., Longbo
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7

Y.E.S. QUARTERLY
Vol. 1 No. 3**ADVISOR**

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Manuscripts and original artwork on any insect or Arthropod-related topic are welcome for publication in *Y.E.S. QUARTERLY*. Articles with special interest to young entomologists will receive publication priority. Manuscripts may be of any length, but should be double-spaced and typed (or neatly written). Photographs or maps should be done in black and white, and any drawings, charts, or graphs or maps should be done in black ink and should fit in the new page size. All authors should supply a title for their article and a complete mailing address. We're sorry, but no page proofs can be furnished.

Other features, including news, field notes, book reviews or other illustrations, are also accepted and will be used when space is available.

Members may submit short "advertisements" for the "Trading Post" section, describing their special desires for information, correspondence or specimens. All ads will be edited for brevity and acceptability and their inclusion will be made on a space-available basis.

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REPORT FROM Y.E.S. HEADQUARTERS

At last count (May 1984) we had 214 active Y.E.S. members representing 13 different countries and 41 U.S. states and territories. And, we daily receive either new memberships or inquiries about membership. We are currently in the process of computerizing the optional member background information, and when this task is complete we will be able to produce a directory. If all goes well, the directory should be out by the end of the summer.

I would like to take this opportunity to say a special thank you to all of our 1984 sustaining members. Their help is essential to the continued operation of the Young Entomologist's Society. The 1984 sustaining members are:

Mandie Armstrong	Ballinger, TX
Milan K. Busching	Cincinnati, OH
David Eppelheimer	Grand Rapids, MI
Donald Hildebrant	Ft. Towson, OK
James Nonnemacher	Rochester, NY
Anthony Ortegon	Pueblo, CO
Judy Ratkos	East Lansing, MI
John Stamatov	Armonk, NY
Gaye L. Williams	Bowie, MD

If any members have needs for back issues of Y.E.S. QUARTERLY (Vol. 1, Nos. 1 and 2) or Society brochures, please drop us a line and we will send them right out to you. If you know of an event (for example, we will be distributing brochures and sample journals at this summer's Rocky Mountain Conference of Entomologists) or an institution (museum, nature center, school or club) where you can distribute brochures, we will be glad to send you the necessary supply. After all, the brochures don't do any good sitting in my office!

And lastly, if you have any questions, concerns, suggest or needs for information, we'd like to hear from you. We'll be happy to help you in any way we can. I hope you're having a great summer; let us hear about your adventures through an article, photo, or drawing.

Gary A. Dunn

Extension Entomologist
Y.E.S. Advisor

COLLECTING IN MINNESOTA

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I have collected insects on our farm in Minnesota ever since I was able to figure out how to catch those elusive six-legged creatures. My first tool was a fly swatter which I used to catch small blues and alfalfa butterflies. These sat on the clover in the front yard and were fairly easy to sneak up on. I didn't get too many good specimens, but for a kid of three or four they were quite a prize. I kept my small collection in a cigar box and was very proud of it—even if the dermestid beetles ate many of them. Through the years, I progressed in my collecting and storing techniques, and I learned about what I had collected and now feel that it is a very rewarding hobby.

Winter hangs on in Minnesota forever it seems, but finally it does leave. I begin to look for something to catch in April and can collect on into the first part of October depending on when the first hard freeze hits. June and July are the peak times for collecting, although certain species are only present for a short time during one month of the year.

At home, I like to collect on the edge of a grove of trees. Here I find blues, hairstreaks, and coppers. The alfalfa fields, when blooming, are exceptional for collecting. I always find many blues, skippers, and sulphurs. In the last week of September and the first part of October, Colias eurytheme and Colias philodice are very abundant. The females show a great degree of variation, especially in the albinic phase. In a garden near the alfalfa field, I collected a male Colias eurytheme—an all-black aberration. Near us is a railroad track that is very good for collecting. The wild flowers there attract many species of skippers, three species of fritillaries, sulphurs and blues. There always seems to be something really interesting at this place to collect.

Minnesota abounds in parks that provide excellent collecting. However, in state parks you must first get permission before doing any collecting. At least once during the summer, my dad takes the family fishing in the northern part of the state. Along with fairly good fishing, the insect collecting is really great. Many butterflies that do not occur where I live can be found there: such as Limenitis arthemis, Peiris napi, Speyeria atlantis, Nymphalis-vau album and Feniseca tarquinius. Once, while heading for a trail for an afternoon hike, I passed by a building and under a light fixture

was a moth that turned out to be Hyphoraia parthenos. Other large moths like Antherea polyphemus, Actias luna and the somewhat rare S. gloveri (of which I have only seen one) also occur there. Mitch Marcotte, who was collecting with me, was able to get an S. gloveri. We were collecting at a light and a large moth flew in and landed on the cement in front of us. I just thought it was a Polyphemus, so was not too concerned. My friend went over and caught it. I sure was surprised when he showed it to me. We waited a long time and even looked at other lights, but couldn't find any others.

I like to use a U.V. light trap for night collecting and have good luck collecting moths and beetles. The trap catches the insects in a cloth bag that hangs down underneath. The only problem with this set up is that raccoons love to eat the bugs that are caught inside. I have tried many things to keep it out of their long reach—to no avail. I have gotten up many a morning to find a ripped piece of cloth laying on the ground.

Recently when we went camping, I should have known I would have trouble with the raccoon population. When we first arrived at our campsite, I set the cooler down out of the camper and went inside for something else. When I returned there was a fuzzy-faced bandit trying his hardest to get it open. Laughing a little, I just scared him away and went about unpacking. Little did I suspect he would be back that night with the rest of the gang. Two raccoons fighting over your collecting bag underneath a camper at 2:00 A.M. is not my idea of waking up to a beautiful morning.

There are quite a number of sphinx moth species that can be found in Minnesota. I have collected twenty-six different ones so far. Some of them have been strays from down south. Some of these are Agrius cingulatus, Xylophanes tersa, Aellopos titan, Erinnyis obscura, and Deidamia inscriptum. There are also many Catalcola and the smaller moths.

Well, I hope I have given you a little idea of what it's like here in Minnesota--and an idea of what can be found here. I like to read about what others are doing in entomology and try the ideas that might work for me, so I hope other members will send stories into Y.E.S. QUARTERLY.

EARLY SPRING COLLECTING ON MT. WASHINGTON, NEW HAMPSHIRE

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Mt. Washington, at 6,288 feet in elevation, is the highest mountainpeak east of the Mississippi River and north of the Carolinas. It is the highest and most prominent peak of the Presidential Range (so named because of the many peaks named after early U.S. presidents) in the White Mountains of New Hampshire. The mountain is located in the northcentral part of New Hampshire, near Gorham in Coos County, at latitude $44^{\circ}15' N$ and longitude $71^{\circ}17\frac{1}{2}' W$; that places the mountain about 150 air-miles northwest of Boston, Massachusetts, and 130 miles southeast of Montreal, Quebec.

Mt. Washington is a large mountain (fig. 1), rising 4,000 feet above the surrounding terrain; many slopes are cut by deep ravines. Above the ravines are comparatively level areas ("lawns") which vary in elevation from 5,000 to 5,500 feet).



Figure 1.

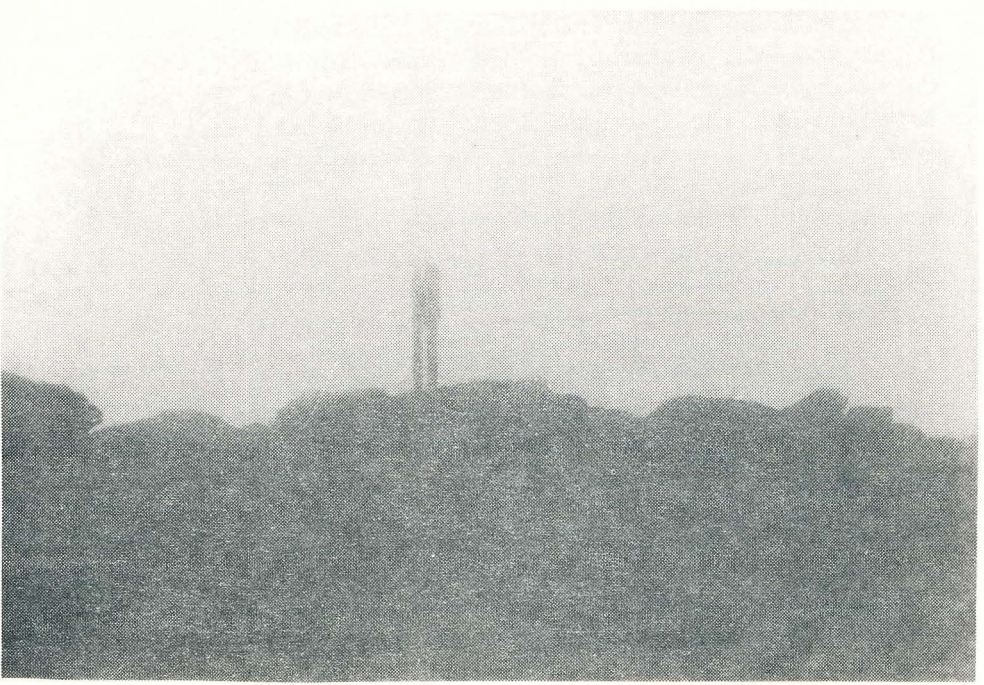


Figure 2.

Above these lawns, rises the barren, rock-strewn summit (fig. 2). The lower slopes are covered with dense forests of maple, birch, poplar, and other hardwood trees, which give way to forests of spruce and fir--the stunted and wind-gnarled forms of which are last encountered at the treeline near 4,000 feet (fig. 3). The climate of the mountain is comparable to that of northern Labrador. The mountain experiences long, severe winters and short, cool summers. Incredibly violent, wintry storms can occur at virtually anytime, even in the middle of summer. The highest wind velocities ever recorded on the earth occur on Mt. Washington--in excess of 230 miles per hour! Even in the summer, warm, sunny, calm days are not common. Because of its climate, the mountain acts as a refuge for many species of plants and animals that otherwise only occur in areas several hundred miles to the north, like the rare, locally endemic beetles that bring many collectors to this place.

There are two features of interest on this mountain--the cog railway and the carriage (auto) road. The cog railway ascends the west slope of the mountain and was completed in 1869. It is one of the two steepest railroads in the world with a maximum grade of $13\frac{1}{2}$ inches to the yard. The Mt. Washington carriage road was constructed from 1855-1861, and it ascends the east slope of the mountain. This toll road provides fairly easy access to the summit for touring and collecting purposes.

While living in New Hampshire, I only had two opportunities to ascend Mt. Washington--and both times did very little collecting. However, on 2 June 1983, I visited the mountain, ascended via the carriage road and collected some beetles. When I arrived at the base of the mountain in the morning, it was mostly sunny, in the mid-60's and calm. However, I could see that the entire upper half of the peak was densely shrouded in clouds. A quick check at the base station showed the conditions on the peak to be cloudy, cold (35°F) and very windy (gusts up to 45 mph). Needless to say, it didn't sound like conditions conducive to beetle collecting, but since it was my one and only chance to visit the summit, I decided to make the 8-mile ascent.

The road and rest of the mountain disappeared into the clouds at about 3,500 feet, and I had to take great care to avoid colliding with descending vehicles on the narrow mountain road (fig. 4). The weather at the summit was even worse than reported: it was still 35°F, but with steady winds of 40 mph and gusts in excess of 60 mph. Those winds were enough to knock you over or to rip the door off your vehicle if you weren't careful. Long icicles were forming on the summit buildings because of the water-laden clouds that shrouded the peak. Visibility was down to 10 to 15 feet maximum. After resting for a while at the Summit House, I decided to return to the base where the collecting would be better.

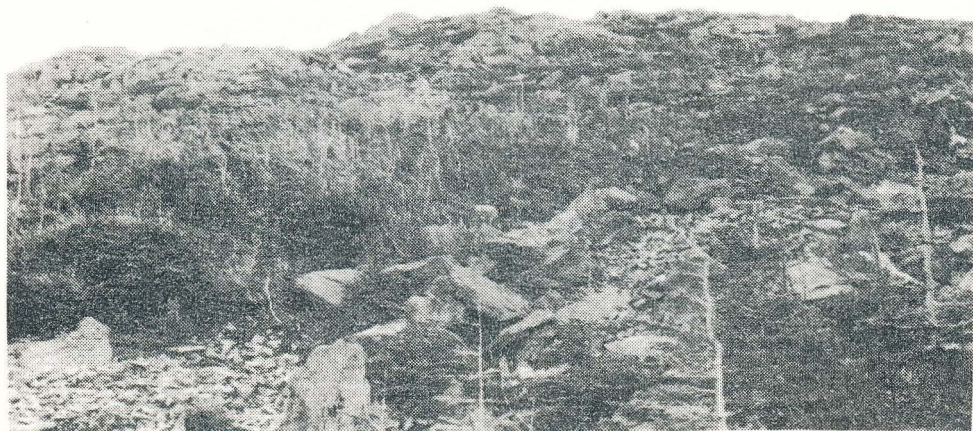


Figure 3.



Figure 4.

However, by the time I had descended to 3,800 feet, to a small buidling called the Halfway House, I saw that the weather at the peak was clearing. I promptly turned around (no easy task on the narrow road) and returned to the summit. By the time I arrived at the summit, the weather had definitely improved—the clouds had cleared off and the wind had diminished, but it was still cold.

At last it was time to try some collecting. I started at an area called the "cow pasture" near Ball Crag at about 6,000 feet elevation. The area is relatively flat and is characterized by stony soil, a low carpet of mosses, grasses and other specialized plants, and large, angular boulders (fig. 5). There were also many low, wet areas of varying sizes scattered among the boulders, and it was here that the collecting was most successful. Beetles could be found by turning over the rocks in the vicinity of the wet areas. I found that if I hugged the ground behind the large boulders while collecting I was somewhat protected from the furious wind. This relief was definitely welcome as the noise of the wind rushing by my ears was deafening. After a half hour of searching, I collected 6 specimens of Pterostichus pinquedinius Eschscholtz, 2 P. haemotopus Dejean, and 4 Amara alpina Paykull.

A second stop was made at a similar habitat located at 5,700 feet elevation, near the Huntington Ravine trailhead.

Here I collected 4 Carabus chamissonis Fischer, 1 P. haemotopus, 1 A. alpina, and 1 P. articola Chaudoir.

Several other stops were made at slightly lower elevations, but I neither saw nor collected any beetles--perhaps because there was little moisture. I did not encounter specimens again until I descended to the Halfway House at 3,840 feet elevation. Here, on a moist, stony hillside opposite the building, I collected 14 Nebria gyllenhali Schonherr, 1 Notiophilus borealis Harris, and 9 Bembidion grapei Gyllenhal from beneath stones.

It was now early afternoon and my time was running short. I continued my descent to the base without delay and began the trip to southeastern New Hampshire, a prelude to the long trip back to Michigan.

The halfday trip up Mt. Washington netted only a total of 43 specimens, but I was pleased with the results, especially given the uncooperative weather. Besides, virtually all the species collected were endemic to the mountain and would be difficult, if not impossible, to collect elsewhere with such ease. I felt I had accomplished what I set out to do--and had an exciting time doing it.



Figure 5.

WHAT IS THE MEANING OF THOSE CRAZY SCIENTIFIC NAMES?

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Have you ever wondered where those unpronounceable scientific names of animals come from? Been impressed by your bug-collecting friends that can rattle off the multi-syllable handle of each catch? Never fear, this may unravel some of your jitters over scientific names for you.

Hippopotomus, while being a mouthful, is certainly pronounceable. So is rhinoceros. Yet both of these are part of the actual scientific names for these African creatures. Most other names can be just as difficult to tangle with at first crack, but when taken slowly and coupled with a little understanding, even you will be exclaiming over your next duodecimpunctata (the 12-spotted Ladybird beetle).

Binomial nomenclature, as the scientific naming system is called, got its start back in the late 1700's by the Swedish botanist Karl von Linne. The prefix bi- means two, so binomial nomenclature is a two-named classification system: each distinct animal has a unique two-part name. Each name is derived from the ancient language of the Roman Empire: Latin. For a long time, this was the universal language of all scientists. Latin is often called a "dead" language since no one uses it for everyday life. Mr. Linne liked Latin so much, however, that he even changed his name to Carolus Linnaeus, the Latinized version.

Latin is actually very prevalent in English and many other languages. The words animal, defector, index, inquisitor and odor are all the same as the original Latin. Thousands of other words are based on Latin roots. A small sample: malevolent, lectern, munitions, regal, script and native.

Why all the fuss about names? For starters, people from different places have different names for the same animal. A collector in America asking for a Camberwell Beauty would most likely be met with blank stares, but any British lepidopterist would quickly show you his series of Nymphalis antiopa, what Americans call the Mourning Cloak. A gopher to most people is a rodent; take a trip to Florida and ask for a gopher, however, and you will most likely be handed a tortoise. Different names in different places for the same animal; same name in different places for a different animal.

Ok, so we need a unique, universal name for each distinct animal so that we can all communicate. But who decides what is a distinct animal? This is a problem that has continued relentlessly since Linnaeus' day. a simple solution would be to go by looks. After all, everyone knows that a fish is different from a flamingo. But then one comes across such creatures as the Diana fritillary (sorry, thats Speyeria diana), one of the classic examples of sexual dimorphism, or different characteristics between the sexes. The female of this butterfly is a rich dark blue; the male has brilliant orange coloration! To a novice lepidopterist, they would be considered separate insects, but they are the same.

The simplest definition of what constitutes distinct animals is this: if two animals can breed together and produce healthy offspring, then they are the same species. If they cannot, then they are unique species. This covers most cases, but if you think a moment, there are exceptions: the ornery mule, usually only too healthy, has for parents a horse and a donkey. So our simple little definition needs to be improved. The mule is healthy in all respects but one: it cannot reproduce. Therefore, our test animals must be able to have offspring that can reproduce themselves to be considered the same species. The two must be genetically similar enough to produce healthy offspring. When they are, they can be considered the same.

Each animal and plant classified into a seven-tiered system. The categorical order, family, genus and species. For examples, all butterflies are in the class Insecta, order Lepidoptera. The Morning Cloak is in the family Nymphalidae (the brush-footed butterflies). You already know the genus and species. A handy phrase for remembering these seven categories is "King Phillip Came Over From Germany, South." The first letter of each word should remind you of what category comes next.

I have often wondered what some of the scientific names for insects mean. Some insects you can easily figure out, like with Papilio multicaudata, the Two-tailed Swallowtail (though it seems like three). The prefix multiobviously means many. A quick check in a Latin dictionary reveals that cauda means the tail of an animal. Not bad. Going further, papilio is Latin for butterfly! So it's a multi-tailed butterfly. Can't get much better than that. Another descriptive one is Lemenitis arthemis rubrofasciata. Rubrica means red ochre or red earth, and fascia is Latin for a band or stripe, so this is a reddish, orange-banded butterfly. An awfully pretty one at that.

Traditionally, the naming of a new insect (or any animal) goes to the discoveror. Some people do this quite well. The famous crane fly expert Charles Paul Alexander has personally

named over 10,000 crane flies! Where do the names come from that aren't descriptive? A favorite source is from Greek and Roman mythology. Colias eurydice and Lethe eurydice get their names from the wife of Orpheus, taken from him by Hades, the ruler of the underworld. In keeping with this sinister tone, the genus Erebia is named after Erebus, a lesser god of the lower worlds, son of Chaos and the brother of Nox (ever heard the word noxious?)

The Greek author Homer has lent many names to insects from his famous tale of the war between Greece and Troy, located in what is now Turkey--two nations still at odds today, nearly 2700 years later. Papilio nitra pergamus gets its subspecies moniker from the name of the citadel of Troy. Papilio troilus is named after Troilus, one of the many sons of Priam, the king of Troy. Troilus was taken prisoner and killed before the gates of Troy, by none other than Achilles.

Yet another nomenclature style is to name an animal after a location. The hairstreak butterflies, the genus Strymon, gets its ID from a river on the border of Thrace, an ancient nation near Greece. Some are more mundane names, simply naming the animal after the place it was first found.

Here are some more explanations:

- * Parnassius sp.--named for a mountain in Phocis, sacred to Apollo and the Muses.
- * Battus sp.--the founder of the African city Cyrene.
- * Papilio glaucus--means bluish- or greenish-grey butterfly!
- * Phoebis sp.--another name for Apollo, the Sun-god. Fitting, since these are mostly brilliant orange and yellow butterflies.
- * Pieris sp.--a Macedonian, the father of the nine Muses.
- * Culex sp.--Latin for gnat or midge, used for the most dreaded of insects: the mosquito.
- * Danaus sp.--son of Belus and brother of Aegyptus, whoever they were. He supposedly had fifty daughters (the Danaides).
- * Hamadryas sp.--Latin for a wood-nymph.

Well, this Homo sapiens has had enough and thinks it is time to stop and have a snack of Malus and Citrus.

A HARD LIFE

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The life a Monarch butterfly is hard from the beginning. As an egg, it finds itself alone on a milkweed leaf. The first problem in its young life is to get out of its tight-fitting cradle, which is only accomplished by much struggling. The newly hatched infant then proceeds to finish off the last morsel of its previous home. This process takes about seven minutes, after that the infant begins devouring the plant on which it is standing. Also, if it, as an egg, was laid on the plant on a cool day, or if the days were cool after it was laid, instead of making its appearance in three days, it might wait twelve days before emerging.

The infant now begins an outrageous childhood. It seldom has siblings or cousins on its plant. The only things it ever sees are large aphids, occasional ladybugs, grass, sky, and maybe a giant human walking past. This unfortunate creature has no parents to raise it, but must learn by itself.

One childhood problem occurs when it has grown too large for its old skin: it has to fight out of the old skin to get to its new one. The poor caterpillar must perform this tiring operation five times in its life. Before this happens for the last time, the caterpillar spins a small dense mat of web. The caterpillar attaches itself to it, and then hangs upside-down. This web then becomes a beautiful green case, or chrysalis.

Inside the chrysalis, the caterpillar is going through adolescence—a time of much change. Old organal walls disappear, and new ones form in their place. A chrysalis is in danger, because its outer shell is very thin. If broken, the caterpillar inside will die.

After two weeks pass, the adolescent is an adult. Once again, the fragile creature must struggle out of a tight-fitting outfit. Since it is still upside-down, the young butterfly must leave its final home carefully. It tightly grasps the chrysalis walls, since a fall could cause immediate death. Then it hangs for about thirty minutes, filling its wings with fluid. When fully expanded, the wings require two hours to dry. After this, the butterfly is hungry and flies to flowers for food (nectar). Often, the flower on which it lands is empty of nectar, and the butterfly must find a different place to eat. Thus, it spends much time and energy searching for food.

Winter is a problem for Monarchs. To avoid the cold, they fly south. Before leaving, the butterfly eats a large amount of food that is stored as fat. The butterfly has no map for the long trip, but relies solely on instinct. It usually flies alone, but may join others at night to sleep.

The small creature encounters many hazards on the trip. Cars eliminate a large portion of the population. High winds and storms also destroy many butterflies. Monarchs fly from ten to thirty miles an hour and can average eighty miles per day. Most fly to the Sierra Madre Mountains in Mexico, and some fly to Central America.

In the mountains, congregations of butterflies cover the trees. Here they are semi-dormant, due to the cooler temperatures, and cannot escape from enemies quickly. Enemies such as birds, cattle, mice, shrews, and ants reduce the number that will travel north.

When winter ends, the butterflies fly north and create a new generation as they go. Most males die on this flight. The females lay their eggs on young milkweed plants--only one egg per plant. Old plants are too tough for infant caterpillars to chew. After the eggs are laid, the females die, thus ending their hard life, but the young are left to repeat the cycle. The entire metamorphosis from egg to adult takes five weeks, and the remainder of their life is spent as "fluttering flowers."

Though they seem carefree, butterflies are not. Butterflies have to avoid people who are trying to catch them with nets. These people gladly murder the helpless victims then add their bodies to a growing collection of corpses. If the wings are torn or worn-looking, the person will discard this specimen and search for another. This is cruel and thoughtless.

If a person must capture butterflies, why not do so on film? If the live insect is more interesting, raising them is far more rewarding. Butterflies are much prettier when they are alive, and usually do not harm human products. They should be enjoyed flying freely in a meadow instead of collecting dust in a display case.

GROUND BEETLES COLLECTED IN A MICHIGAN ASPARAGUS FIELD

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In 1981 and 1982, I had the opportunity to survey the ground beetle fauna of a small (50' x 150') asparagus field located in Lansing Township, Ingham Co., Michigan. The field is a part of research land of Michigan State University. The sampling was undertaken to determine the faunal composition, seasonal activity patterns, and abundance of carabid beetles in agricultural situations.

The beetles were collected with three, barrier-type pitfall traps. Each trap consisted of two pitfall cups separated by a meter-long aluminum barrier. The traps were filled with ethylene glycol preservative and were emptied weekly.

A total of 1688 specimens, representing 28 species in 16 genera, were collected between 30 May and 23 October, 1981; 1168 specimens, representing 24 species in 12 genera, were collected between 14 May and 25 November 1982.

The 1981 capture records included: Loricera pilicornis Fabr. (1 specimen), Clivina impressifrons Leconte (13), Scarites quadriceps Chaudoir (15), Bembidion quadrimaculatum oppositum L. (3), Bembidion minus Hayward (1), Abacidus permundus Say (302), Pterostichus lucublandis Say (6), Pterostichus chalcites Say (31), Pterostichus melanarius Illiger (115), Evarthrus sodalis LeConte (174), Agonum cupripenne Say (5), Agonum placidum Say (20), Amara avida Say (12), Amara cupreolata Putzeys (2), Stenolophus comma Fabr. (79), Harpalus affinis Schrank (69), Harpalus herbivagus Say (45), Harpalus pennsylvanicus DeGeer (575), Harpalus faunus Say (1), Harpalus bicolor Fabr. (3), Harpalus calignosus Fabr. (1), Harpalus longicollis LeConte (3), Anisodactylus sanctaecrucis Fabr. (189), Anisodactylus rusticus Say (6), Chlaenius tricolor Dejean (4), Diblocheila obtusa LeConte (1), Omophron americanum Dejean (1) and Cicindela punctulata Olivier (11).

The 1982 capture records include: Scarites quadriceps (23), Clivina impressifrons (8), Pterostichus chalcites (21), Pterostichus lucublandis (7), Pterostichus melanarius (38), Evarthrus sodalis (173), Abacidus permundus (95), Agonum cupripenne (3), Amara patruelis Dejean (1), Amara apricaria Payk. (1), Amara familiaris Dft. (1), Amara aenea DeGeer (25), Amara lacustris LeConte (1), Amara cupreolata (1), Harpalus herbivagus (103), Harpalus pennsylvanicus (211), Harpalus

affinis (32), Harpalus pleuriticus Kirby (1), Anisodactylus sanctaecrucis (294), Anisodactylus rusticus (25), Anisodactylus carbonarius Say (1), Stenolophus comma (99), Chlaenius tricolor (1), and Cicindela punctulata (4).

In 1981, the seven most abundant species, in order, were: Harpalus pennsylvanicus (34%), Abacidus permundus (17.9%), Anisodactylus sanctaecrucis (11.2%), Evarthrus sodalis (10.3%), Pterostichus melanarius (6.8%), Stenolophus comma (4.7%) and Harpalus affinis (4.1%). The remaining 21 species accounted for 11% of the catch.

In 1982, the seven most abundant species were: Anisodactylus sanctaecrucis (25.2%), Harpalus pennsylvanicus (18.1%), Evarthrus sodalis (14.8%), Harpalus herbivagus (8.8%), Abacidus permundus (8.1%) and Pterostichus melanarius (3.3%). The remaining 16 species accounted for 13.3% of the catch.

In a similar study in 1980 (Dunn 1982), I collected ground beetles from a small grain field located one-half mile southeast of the asparagus field. Thirteen out of the 16 species collected were also taken in the asparagus field in 1981 and 1982. Thus, it appears that the type of crop plant has little bearing on the carabid fauna of agroecosystems. It seems that the ability to inhabit open, disturbed (cultivated) land is more important in determining the members of an agroecosystem carabid fauna. Most of the common, abundant species of these studies naturally occur in weedy fields and other open areas. At least three species (Pterostichus melanarius, Amara familiaris and Amara aenea) are introduced to North America and have demonstrated superiority as synanthropic species, readily inhabiting roadsides, waste places and other disturbed areas unacceptable to native species. Undoubtedly many of the dominant species noted in these studies are aided by their ability to overwinter in a condition unaffected by agricultural practices and/or to reinvade rapidly from nearby field borders (weedy edges, etc.).

Continued study of carabid beetles and other insects in agroecosystems and other human-made habitats will undoubtedly reveal more interesting information on the composition and abundance of species, adaptation, and colonization by native and introduced species, and define the role of carabid beetles as predators and weed-seed destroyers.

References

- Dunn, G. A. 1982. Ground beetles (Coleoptera: Carabidae) collected by pitfall trapping in Michigan small-grain fields. Great Lakes Entomol. 15(1):37-38.

The Collector's Jar

**Edited by Susan Hausmann
Department of Entomology
Michigan State University
East Lansing, MI 48824**

The bombardier beetle (Brachinus species) sprays very hot liquid from its abdomen in the direction of its attacker. For any of you who are chemists, the spray is the result of an explosive oxidative reaction that generates quinones at an amazing 100°C. So, during your pursuits of ground beetles, if one produces a puff of smoke along with a popping noise and zaps you with a hot spray, you will have a good idea what it was.

Do you know how ants acquired the scientific name Formicidae (pronounced for-miss-i-de)? Many species produce formic acid, a powerful irritant that deters some predators from eating too many ants for lunch.

Have you ever collected a beetle that, when placed on its back, clicked and propelled itself into the air like a piece of popcorn? If so, you witnessed the wonders of the click beetle (family Elateridae). The secret is its spine which fits into a groove on the underside of the beetle between the head and body regions. Before "clicking," it bends its head and body backward like a gymnast doing a backbend, then the spine pops into the groove causing the click beetle to somersault into the air. This is a common group of beetles. Look for the adults on foliage, flowers, under bark, or in rotting wood.

What are those little clumps of white, wet foam attached to twigs and blades of grass? They look like spittle! Next time you find these, wipe away some of the foam and you will find small, hopping, green, brown, or grey immature insects called spittlebugs. These bugs secrete a liquid and use their hind legs to whip air into it. They remain within this moist environment until becoming adults. Not only does the spittle keep them moist, but it may confuse predators so the bugs can feed safely on plant juices.

Reviews

The Audubon Society Book of Insects.

by Les Line, and Lorus and Margery Milne.

1983. Harry Abrams, Inc., publishers,
New York, New York. 264 pp. \$50.00

The Audubon Society, once informally restricted to the art of birdwatching, has now branched out in pursuit of the appreciation of many other living organisms. Unfortunately, the quality devoted to the publications on birds does not extend to this volume on insects.

As a basic introduction to the insects as a whole, perhaps this book is not that bad, but it lacks anything unique, a specific character that sets it apart from the other average insect picture-books. The authors have evidently attempted to overwhelm the reader with an overdose of color photos (156 of them) of many insects. The text, interspersed between consecutive pages of pictures, offers only a cursory examination of the major orders (and a few minor ones, too) in separate chapters. And what is a chapter on arachnids doing in this book of insects?

The photos, though colorful and profuse, are not exceptionally spectacular. Sometimes a picture takes up two pages, and the binding seam often obscures much of the insect.

At any price, this book could serve only as an informal introduction to insects. But, decide for yourself--you may very well decide that the Audubon Society should stick with birds!

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The Pesticide Conspiracy

by Robert van den Bosch,

Doubleday & Company, Inc.
New York, 1978

The Pesticide Conspiracy is a book on what the author sees as dangerous pest control practices in the United States. He argues that current pest control is conducted without any regard to scientific efficiency or environmental safety. He writes that the entire pest control machinery, from university

research to chemical development to government regulation, is wholly owned by and operated in the best interests of a group of insecticide--producing corporations. After citing many examples, ranging from concrete to conjectural, he concludes by offering integrated pest management (IPM) as the only viable solution.

The book begins with an emotional appeal on the sorry state of the environment and how only we can and must change it. Silent Spring by Rachel Carson is mentioned several times, but not quoted. The preface was written by Paul Ehrlich, author of The Population Bomb and other ecology books.

Van den Bosch's emotional, ecological tirade will only turn off all but the most simple-minded reader (who won't be able to get through the heavier sections anyway). His argument, however, might have been just as effective without the tear-jerk speech.

The presentation of the pesticide problem, the "pesticide treadmill" as he calls it, is loaded with blatant emotional appeal. He pictures everybody from grower to housewife as bloodthirsty killers. A home gardner spraying his roses is likened to "a frontier marshall pumping the lethal load of his Colt .44 into the thrashing body of a punk gunslinger."

Eventually, a rational explanation of the current problem arises. Van den Bosch cites the development of DDT as the reason behind the proliferation of chemical controls. Since DDT was highly effective, it made pest control efficient, inexpensive, and most of all, convenient. Because of the success of DDT, people began to demand convenient pest control, and soon began to rely on it. Of course, this demand for convenient pest control was quickly met by the growing chemical industry in the post-war prosperity years. With the companies pulling in the bucks, and the farmers and their related industries expanding due to this new convenience, little concern was evidenced for human or environmental safety. Little was known of environmental dangers until the early sixties, and by that time the chemical companies were such an important industry that it would have been economically dangerous to allow them to hurt too badly. Consequently, little has been done to effectively control pesticide damage to the environment, aside from banning DDT.

Van den Bosch's presentation of the problem seems to be accurate. He attacks the chemical companies and agri-business concerns ("the Pesticide Mafia") on two fronts: the actual efficiency of their methods at controlling pests, and their political and economic involvement in research and regulation.

There are three main problems with pest control application: resistance, resurgence, and secondary outbreak.

They all happen, although contrary to van den Bosch's inference, they don't always happen. Resistance is when an insect population is exposed to an insecticide so often that it literally becomes immune to it. Resurgence is caused by an insecticide killing off less resistant natural enemies of a particular pest. With their natural restraints gone, the pest population grows at an even faster rate than before, causing an even worse problem. A secondary outbreak is caused when an insecticide application decimates the population of a dominant pest, allowing a competitive species to dominate. The accepted solution to all of these problems is further chemical applications, frequently with an alternating sequence of different chemicals. A common practice is pre-emptive treatment, following rigid schedules published by the chemical companies or the USDA.

The other front is the "pesticide mafia's" alleged connection with everybody who's anybody in the field of pest control. Van den Bosch pictures everyone from the USDA ("their wholly owned subsidiary") to Juan Valdez' coffee plantation as being dupes of the chemical-agri-business concerns. This "pesticide mafia" includes pest control operators, applicators, banks, utilities, farm equipment companies, corn and cotton-belt congressmen, food processors and retailers, entomologists, chemists, and a host of others. He infers that these groups (government agencies, extension services, etc.) are dominated by members of the pesticide mafia, and that being a part of one of those groups makes one a part of the "pesticide mafia." I wonder if he includes his own position on the faculty at Berkeley among them.

One group he specifically targets as being a dupe of the pesticide mafia is the prestigious Entomological Society of America. His evidence may sound significant to readers unfamiliar with entomology, but it borders on ludicrous to the informed. First, he says that the ESA is dominated by economic entomologists. This is true, but it doesn't indicate infiltration, it reflects statistical fact. Most entomologists are economic entomologists, because that's where most of the jobs are.

Second, he asserts that none of the "responsible pesticide reformers" has ever been invited to speak before the ESA. Among these alienated people he lists are Barry Commoner, Rachel Carson, and Ralph Nader--none of whom are qualified to present scholarly papers to an entomological society.

Van den Bosch's solution to all of this is integrated pest management (IPM). He claims that if it weren't for the pesticide mafia, IPM would be in widespread use, providing chemical-free produce without environmental damage.

IPM is a system especially adapted to each crop. It consists of constant monitoring of pest populations, encouragement of natural controls, artificial introduction of natural enemies, and selective use of pesticides when crop damage reaches a certain economic threshold. Van den Bosch presents it as a utopian form of pest control, but doesn't present any disadvantages.

The worst disadvantage is inconvenience. One of the primary reasons chemical control became so popular is its convenience. Getting the farmers of America to convert from simple, inexpensive methods to complicated, more expensive methods for the sake of environmental quality will be no easy task. Conservative farmers are not easily going to risk their finances on riskier IPM techniques. Even without the pesticide mafia's opposition, IPM would catch on slowly.

In conclusion, it can be seen that van den Bosch has a good idea, but presents it poorly. IPM is not unpopular because the pesticide mafia opposes it; it is unpopular because it is often impractical, usually expensive and always inconvenient. The group that makes the important agri-business decisions, (USDA, EPA, etc.), are often dominated by people concerned with agri-business because they are the ones with the requisite knowledge.

IPM is certainly needed, and hopefully will become a more important method of pest control in the future. However, van den Bosch's rampant paranoia and blatant emotionalism detract from the appeal of his argument. The Pesticide Conspiracy is a prime example of what could be a good argument, badly presented. It proves the old maxim: "It's not what you say, but how you say it."

William O'Donnell
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Stow, OH 44224 USA

Young Entomologist's Society ARTICLES OF ORGANIZATION

Article I - NAME

The name of this organization shall be the Young Entomologist's Society (Y.E.S.). (This organization incorporates the former Teen International Entomology Group.)

Article II - PURPOSES

The purposes for which Y.E.S. is organized are primarily educational and shall include, but not be limited to, the following:

- (1) To unite all interested entomologists, amateur and professional, in a single organization.
- (2) To promote the exchange of ideas, information, and specimens among entomologists; this can be partially accomplished through publications or other forums.
- (3) To offer entomologists, amateur and professional, an opportunity to participate as a volunteer in the administration of an entomological organization.
- (4) To promote an awareness of the contributions that amateur entomologists make to the science of entomology and to the quality of life.

Article III - MEMBERSHIP

- (1) All persons with an interest in any facet of entomology, and who are willing to work to attain the objectives of this organization, are eligible for membership.
- (2) Membership categories shall be: youth members (up to 18 yrs. of age), collegiate members (enrolled in any institution of higher education), adult members, and sustaining members.
- (3) Annual membership dues shall be:

Youth members	- \$ 3.00 (US)/yr.
Collegiate members	- \$ 5.00 (US)/yr.
Adult member	- \$10.00 (US)/yr.- (also inc.)
Sustaining member	- \$25.00 or more/yr.

- (5) All memberships are annual and dues should be submitted each January. New members joining at other times of the year are entitled to all back publications and materials for that year; or, if they prefer, they may

have their membership become effective in the following year.

- (5) Member responsibilities shall include, but not be limited to:

Timely payment of annual dues
 Submission of articles, artwork and other materials for use in Y.E.S. publications
 Faithful attention to correspondence from fellow members
 Volunteer for office in the group
 Promote the group among non-members

Article IV - GOVERNMENT

The Young Entomologist's Society shall be governed by a staff of volunteers, organized in the following manner:

- (1) Advisory staff. Two or more individuals, at least one of which has affiliation with the sponsoring institution, shall be responsible for determining operational policies, handling membership services, and directing other group activities.
- (2) Editorial staff. Three or more individuals shall be responsible primarily for coordinating and producing Y.E.S. publications.
- (3) Section coordinators. One or more individuals, from the general membership, will act as section leaders for each of the twelve (12) sections of Y.E.S. (as described in Article IV, #6). These volunteers shall be appointed to two-year terms by recommendation of the advisory staff. All members are urged to apply for any of these positions by contacting headquarters. Duties of the section leaders shall include such things as responding to inquiries addressed to Y.E.S. that relate to their section and reviewing articles for publication.
- (4) Headquarters of the Young Entomologists Society shall be maintained at the Department of Entomology at Michigan State University. All inquiries and correspondence should be addressed to: Young Entomologist's Society, c/o Department of Entomology, Michigan State University, East Lansing, Michigan 48824-1115, U.S.A.
- (5) Y.E.S. shall abide by and adhere to all policies set forth by sponsoring institutions and agencies, including the Department of Entomology, Michigan State University, and the Cooperative Extension Service of the U.S. Department of Agriculture.

- (6) The Y.E.S., shall be divided into special sections (each with a section coordinator - Art. IV, #3) to better facilitate the operation of the group and to bring members with common entomological interests together. Members will have the option of selecting section affiliation when they join Y.E.S. These sections shall be:

- Section 1 - Non-insect arthropods
- Section 2 - General entomology
- Section 3 - Minor orders: Protura-Collembola, Isoptera, Dermaptera-Thysanaptera, Neuroptera, Strepsitera, Mecoptera and Siphonaptera
- Section 4 - Aquatic orders (Emphemerida, Odonata, Plecoptera, Megaloptera, and Trichoptera)
- Section 5 - Orthoptera and relatives
- Section 6 - Hemiptera/Homoptera
- Section 7 - Coleoptera
- Section 8 - Lepidoptera
- Section 9 - Diptera
- Section 10 - Hymenoptera
- Section 11 - Techniques (photography, collecting art, etc.)
- Section 12 - Applied entomology

Article V - COMMUNICATIONS

(1) Publications

The primary publication shall be Y.E.S. Quarterly, which shall be issued winter, spring, summer, and fall. The format shall include, but not be limited to: contents, editorials, scientific articles, news, membership changes, artwork, and tradingpost.

In addition, Y.E.S. will prepare and make available to the membership a listing of members, their addresses and interests. Also, if special monies are available, the advisory and editorial staffs may recommend the preparation of special publications for the membership.

(2) Publication policies

The editorial staff, in consultation with the advisory staff, shall be empowered to accept or reject any materials submitted to Y.E.S. for publication.

Article IV - FUNDS

- (1) Funds collected on behalf of the Y.E.S. and intended for operation of the group for the benefit of its members shall be deposited in a special revolving account at Michigan State University for exclusive use by this organization, as directed by its advisory staff and members.
- (2) The primary source of funds for the operation of Y.E.S. shall be the membership dues. The advisory staff shall be empowered to seek additional special funds via grants, gifts, endowments, etc; these funds shall be intended for special publications.

Trading Post

PUBLICATION: Persons interested in Indian Entomology are invited to subscribe to/write for the Uttar Pradesh Journal of Zoology. Information is available from Uttar Pradesh Zoological Society, PG-Dept. of Zoology, Sanatan Dharm College, Muzaffarnagar-251001, INDIA.

SOCIETY: All persons interested in Acridology and Orthopterology are invited to join to Pan American Acridological Society. Information is available from Prof. S. K. Gangwere, Exec. Secretary-PAAS, c/o Dept. of Biological Science, Wayne State Univ., Detroit, MI 48202, USA.

WANTED: Used stereo microscope for under \$100.00. Also interested in corresponding and trading with SE and SW United States, Spain, and New Guinea members. Dennis Lipinski, 1133 Wade St., Aliquippa, PA 15001, USA.

FOR SALE: Limited number of papered Papilio aristodemus ponceanus, A-1 ad A-2 quality with data. Please make offer. Also, A-1 papered S. diana, males and females. Write: Jevetta B. Florence, Rt. 2, Box 40, Cox's Creek, KY 40013, USA.

WANTED: Books and literature about ants, bumblebees, wasps, hornets and bees. Search list on request. All letters answered and postage refunded. Contact: H. Thomas, Zepelinstr. 31, CH-8057 Zurich, Switzerland.

FOR SALE: Insect Pins: Std. Black, Elephant, Stainless Steel, Minutens and Label Pins. Sizes 000 thru 7 available. For complete list write: Ianni Butterfly Enterprises, P.O. Box 81171, Cleveland, OH 44181.

FOR SALE: Worldwide collectible butterflies, beetles and rare insects, named with data. For subscription to butterfly and beetle price lists send \$5.00 to Ianni Butterfly Enterprises, P.O. Box 81171, Cleveland, OH 44181.

BOOKS FOR SALE: Beetles of the World, Gakken. A magnificent color pictorial reference book containing illustrations of over 600 worldwide beetles with English names and origins. Text is Japanese. Send \$32.50 (postpaid) to Ianni Butterfly Enterprises, P.O. Box 81171, Cleveland, OH 44181.

Beetles, Bernard Klausnitzer. Fascinating and most informative easy reading! Summarizes the most interesting representatives of the beetle family. Fantastic color & b/w illustrations of many rare and extraordinary species. Send \$21.50 (postpaid) to Ianni Butterfly Enterprises, P.O. Box 81171, Cleveland, OH 44181. The Dictionary of Butterflies and Moths, Lathwiate, Watson & Whalley. 405 color photographs representing over 1000 species in this A-Z dictionary that is chock-full of facts such as sizes, habitats, etc. An excellent addition to any library. Send \$19.50 (postpaid) to Ianni Butterfly Enterprises, P.O. Box 81171, Cleveland, OH 44181.

WANTED: Blow flies (Calliphoridae) on loan or for exchange from various regions of the U.S. (particularly the southwest), as part of a study of the distribution of these insects. All material sent will be identified and returned, except for a few specimens retained for the I.D. service. Blow flies are easily collected from raw fish or carrion baits. Send material to Donald Baumgartner, 150 S. Walnut St., Palatine, IL 60067.

Trading Post (continued)

TRADE: Western (Calif. & Nevada) butterflies for U.S. noctuid moths. Write for details: Ron Robertson, 362 Scenic Ave., Santa Rosa, CA 95407

FOR SALE OR TRADE: livestock of many species of moths including H. cecropia, H. euryalis, H. gloveria, D. pholus, etc. Write for complete list: Chris Conlan, 1630 Milan Ave., South Pasadena, CA 91030.

WANTED: Books and literature about ants, bumblebees, wasps, hornets and bees. Search list on request. All letters answered and postage refunded. Contact: H. Thomas, Zeppelinstr. 31, CH-8057 Zurich, Switzerland.

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FOR SALE: over 10,000 butterfly specimens from Malaysia. Free list available from: Stephen R. Treadway, 202 Ridgeway Dr., Nashville, TN 37214 USA.

FOR SALE: Neotropical insects from northern Central America, or will EXCHANGE same for Catocala (Lepidoptera: Noctuidae) especially from Europe, N. Africa, USSR, Central Asia, China or Korea. Also, SELL glassine envelopes in 3 convenient sizes; take fountain pen and stamp pad ink well. Eduardo C. Welling M., Apartado Postal 701, Merida, Yucatan, Mexico.

Trading Post (continued)

PUBLICATIONS AVAILABLE: "Les Punaies Terrestres (Heteropteres: Geocorises) du Quebec," "Manuel d'identification des Carabidae du Quebec" and Fabriques (Journal). Write Association des Entomologistes Amateurs du Quebec, C. P. 52, Sillery, Quebec, GIT 2P7 Canada.

WANTED: Correspondence with persons interested in rearing saturniid moths. Exchange information on foodplants and other experiences. Would trade ovae and pupae. Also interested in Papilionidae. Will answer all letters David Albaugh, 9 Columbia Ave., Jamestown, RI 02835 USA.

WANTED: Eggs, pupae or adults of Polyphemus moths for a living exhibit at community nature center. Donations gladly accepted or purchase can be arranged. Mike Koslosky, Naturalist, Sulphur Creek Nature, 1801 "D" Street, Hayward, CA 94541 USA.

AVAILABLE: 12 page catalog! For years we've supplied private collectors etc., around the world. Catalog only \$1 bill/check; monthly mailings \$6 for a year. Among our offers . . . over 40 morphoidae species, 250 European species, including rare parnassius listing. Transworld Butterfly Co. (YES), Apartado 6951, San Jose, Costa Rica, C. America.

Correspondence and exchange of specimens with young collectors interested in European Lepidoptera. Philippe Brems, 11 rue des Robiniers, 4420 Rocourt, Belgium.

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